STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

GEOLOGY AND MINERAL DEPOSITS
OF AN AREA
NORTH OF SAN FRANCISCO BAY, CALIFORNIA

VACAVILLE, ANTIOCH, MOUNT VACA, CARQUINEZ, MARE ISLAND, SONOMA, SANTA ROSA, PETALUMA, AND POINT REYES QUADRANGLES

BULLETIN 149
1949

DIVISION OF MINES
FERRY BUILDING, SAN FRANCISCO

DIVISION OF MINES
OLAF P. JENKINS, CHIEF

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

BULLETIN 149, PLATE 1
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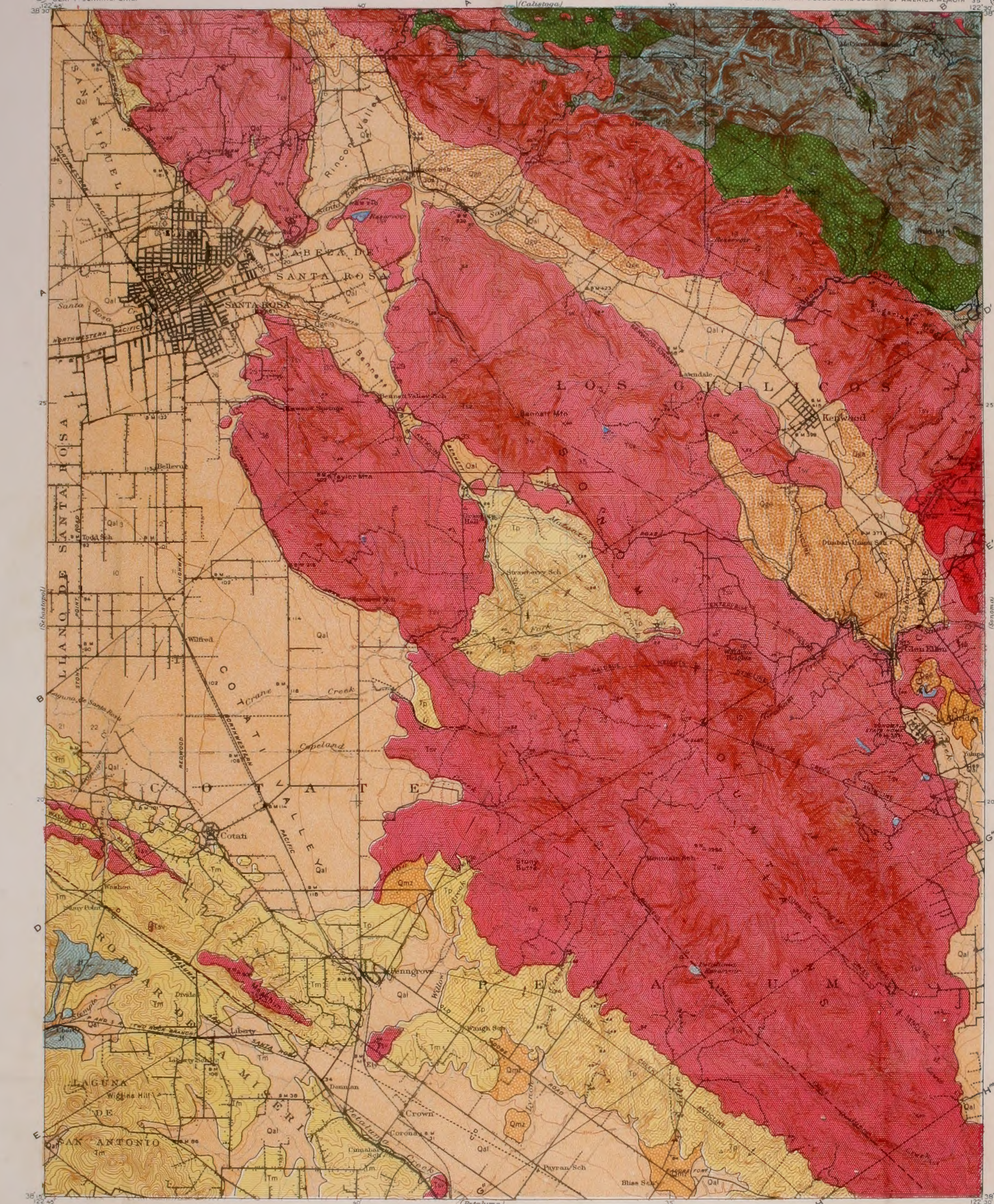

EXPLANATION

SEDIMENTARY ROCKS

- Qal — Younger valley alluvium — Recent
- Qmz — Montezuma formation — Pleistocene
- Qgs — Glen Ellen formation — Pleistocene (contemporaneous in part) — QUATERNARY
- Tm — Merced formation — Pliocene
- Tp — Petaluma formation — Pliocene — TERTIARY
- Kkh — Knoxville and Horsetown (?) formations, undifferentiated — Shasta series — LOWER CRETACEOUS AND JURASSIC
- Jf — Undifferentiated sandstones of Franciscan group (Includes cherts, Jfc of Franciscan group) — JURASSIC (?)

IGNEOUS ROCKS
INTRUSIVE AND EXTRUSIVE

- Tsv — Sonoma volcanics (Includes St. Helena rhyolite member, Tsh.) — Pliocene — TERTIARY
- Serpentine, peridotite and pyroxenite
- Jd — Diabase and basalt (Intrusive into and interbedded with the Franciscan group) — JURASSIC (?)

- Strike and dip of beds
- Fault (Dashed where inferred, dotted where concealed)
- High-angle fault (Normal or reverse; U, upthrown side; D, downthrown side)
- Overthrust low-angle fault (T, overthrust side)
- Axis of anticline (Dotted where concealed by overlying deposits)
- Axis of syncline (Dotted where concealed by overlying deposits)

Base from the U.S.G.S. Santa Rosa Quad.
Geologic cartography by Porter L. Mattox

Prepared in cooperation with the United States Geological Survey

GEOLOGIC MAP OF THE SANTA ROSA QUADRANGLE, CALIFORNIA

By Charles E. Weaver

Scale 1/62500

1 0 1 2 3 4 Miles

1 0 1 2 3 4 5 Kilometers

Contour interval 25 feet.
Datum is mean sea level.

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DEPARTMENT OF NATURAL RESOURCES

BULLETIN 149 PLATE 2
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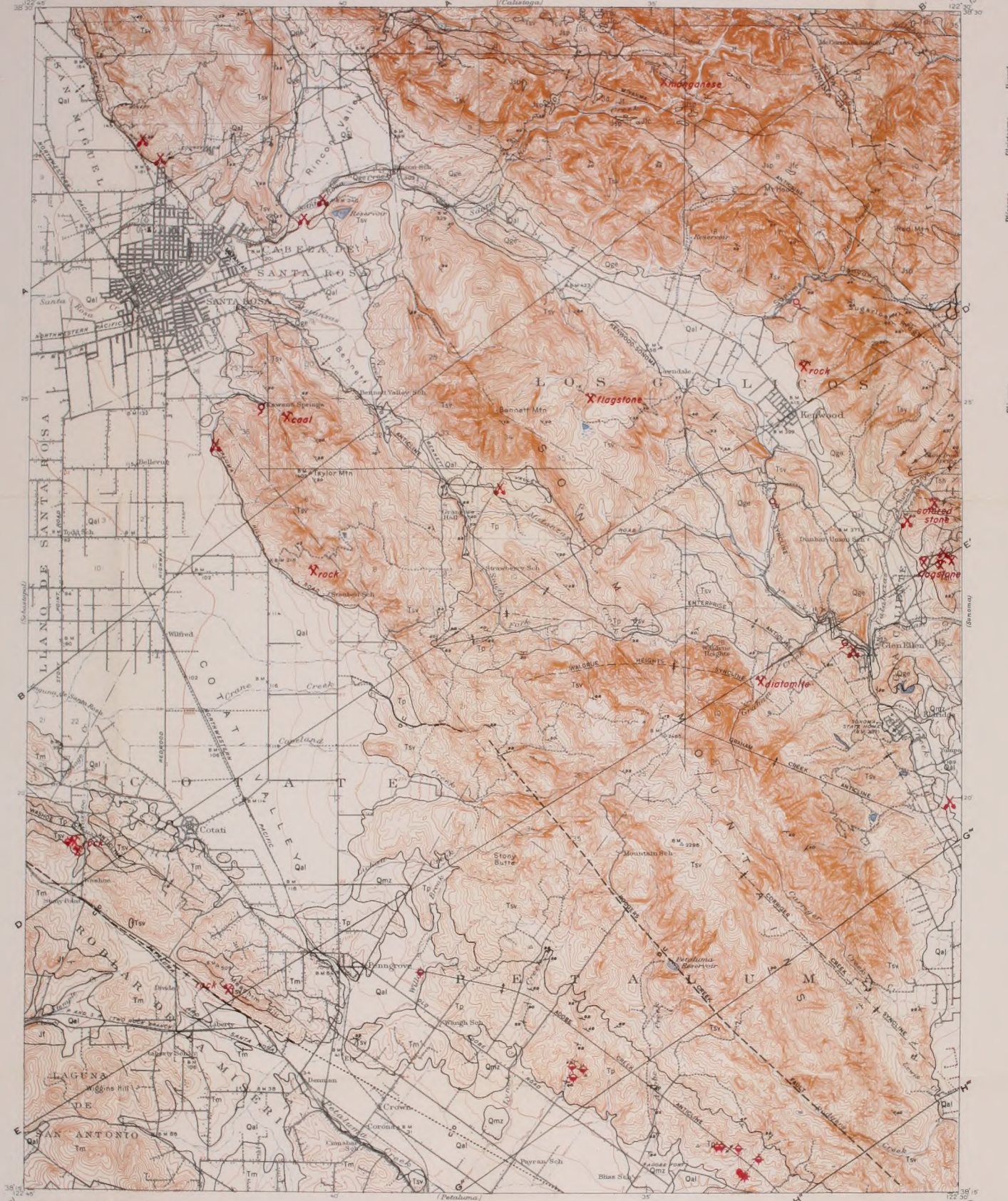

EXPLANATION

SEDIMENTARY ROCKS

Recent	Qal	Younger valley alluvium	QUATERNARY
Pleistocene	Qmz	Montezuma formation	
Pleistocene (Contemporaneous in part)	Qge	Glen Ellen formation	
Pliocene	Tm	Merced formation	TERTIARY
Pliocene	Tp	Petaluma formation	
Sharks series	Kkh	Knoxville and Horsetown (?) formations, undifferentiated	LOWER CRETACEOUS AND JURASSIC
Jurassic (?)	Jfc Jf	Undifferentiated sandstones of Franciscan group (Includes cherts, Jfc of Franciscan group)	

IGNEOUS ROCKS
INTRUSIVE AND EXTRUSIVE

Pliocene	Tsh Tsv	Sonoma volcanics (Includes St. Helena rhyolite member, Tsh.)	TERTIARY
	Jsp	Serpentine, peridotite and pyroxenite	JURASSIC (?)
	Jd	Diabase and basalt (Intrusive into and intercalated with the Franciscan group)	

Strike and dip of beds

Fault (Dashed where inferred, dotted where concealed)

High-angle fault (Normal or reverse; U, upthrown side; D, downthrown side)

Overthrust low-angle fault (T, overthrust side)

Axis of anticline (Dotted where concealed by overlying deposits)

Axis of syncline (Dotted where concealed by overlying deposits)

BY DIVISION OF MINES

- Mine or quarry
- Prospect
- Sand, gravel, clay, or road fill pit
- Mineral spring
- Producing oil well
- Producing gas well
- Non-productive well

Base from the U.S.G.S. Santa Rosa Quad.
Geologic cartography by Porter L. Mattox

Prepared in cooperation with the United States Geological Survey

GEOLOGIC MAP OF THE SANTA ROSA QUADRANGLE, CALIFORNIA

By Charles E. Weaver

Scale 62500

1 0 1 2 3 4 Miles
1 0 1 2 3 4 5 Kilometers

Contour interval 25 feet.
Datum is mean sea level.

DIVISION OF MINES
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STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

Base enlarged from the U.S.G.S. Napa Quad. 1:125,000
Geologic cartography by Porter L. Mattox

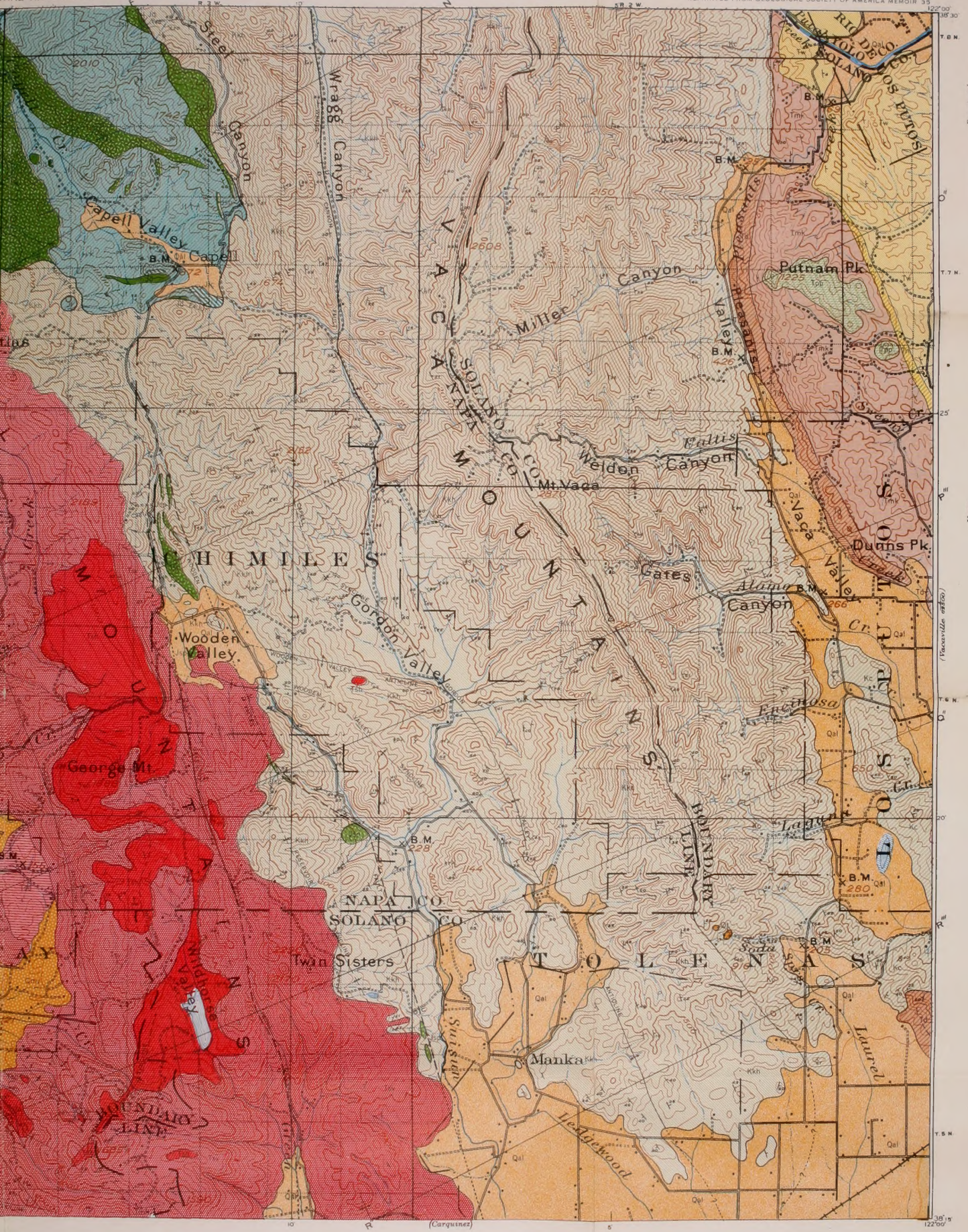
GEOLOGIC MAP OF THE SONOMA AND MOUNT VACA Q

By Charles E. Weaver

Scale 62500

Contour interval 100 feet
Datum is mean sea level

BULLETIN 149, PLATE 3, AND 5
REPRINTED FROM GEOLOGICAL SOCIETY OF AMERICA MEMOIR 35



EXPLANATION

SEDIMENTARY ROCKS

Recent	Qal	Younger valley alluvium	QUATERNARY
Recent and Pleistocene	Qt	Travertine	
Pleistocene (Contemporaneous in part)	Qmz	Montezuma formation	
	Qh	Huichica formation	
	Qhg	High terrace gravels	
Pliocene	Tw	Wolfskill formation	TERTIARY
Miocene (San Pablo group)	Tn	Neroly sandstone	
	Tmk	Monterey shale	
Oligocene	Tsr	San Ramon sandstone	
	Tmk	Markley sandstone	
Eocene	Td	Domengine sandstone	
	Tcs	Capay shale	
Upper Cretaceous	Kc	Chico formation	JURASSIC (?) LOWER CRETACEOUS AND CEOUS (?) JURASSIC
Shasta series	Kkh	Knoxville and Horsetown (?) formations, undifferentiated	
	Jf	Undifferentiated sandstones of Franciscan group (Includes cherts, Jlc)	

IGNEOUS ROCKS
INTRUSIVE AND EXTRUSIVE

Pliocene	Tpp	Putnam Peak basalt	TERTIARY
	Tsd	Sonoma volcanics (Includes St. Helena rhyolite member, Tsh; and tuff containing diatomaceous beds, Tsd)	
	Jsp	Serpentine, peridotite and pyroxenite	JURASSIC (?)
	Jd	Diabase and basalt (Intrusive into and intercalated with the Franciscan group)	

Strike and dip of beds

Fault (Dashed where inferred, dotted where concealed)

High-angle fault (Normal or reverse; U, upthrown side; D, downthrown side)

Overthrust low-angle fault (T, overthrust side)

Axis of anticline (Dotted where concealed by overlying deposits)

Axis of syncline (Dotted where concealed by overlying deposits)

INDEX TO QUADRANGLES

NT VACA QUADRANGLES, CALIFORNIA

Prepared in cooperation with the United States Geological Survey

Miles

Kilometers

Feet

level

DIVISION OF MINES
OLAF P. JENKINS, CHIEF

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

Base enlarged from the U.S.G.S. Napa Quad. 1:125,000
Geologic cartography by Porter L. Mattox

GEOLOGIC MAP OF THE SONOMA AND MOUNT VACA QUADRANGLES

By Charles E. Weaver

Scale 62500

Contour interval 100 feet
Datum is mean sea level

BULLETIN 149, PLATE 4 AND 6
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VACA QUADRANGLES, CALIFORNIA

ver

Prepared in cooperation with the United States Geological Survey

EXPLANATION

SEDIMENTARY ROCKS

Recent	Qal	Younger valley alluvium	QUATERNARY
Recent and Pleistocene	Qt-O	Travertine	
Pleistocene (Contemporaneous in part)	Qmz	Montezuma formation	
	Qh	Huichica formation	
	Qtg	High terrace gravels	
Pliocene	Tw	Wolfskill formation	TERTIARY
Miocene (San Pablo group)	Tn	Neroly sandstone	
	Tms	Monterey shale	
Oligocene	Tsr	San Ramon sandstone	
Eocene	Tmk	Markley sandstone	
	Td	Domengine sandstone	
	Tcs	Capay shale	
Upper Cretaceous	Kc	Chico formation	LOWER CRETACEOUS AND CRETACEOUS (?) JURASSIC (?)
Shasta series	Kkh	Knoxville and Horsetown (?) formations, undifferentiated	
	Jfc / Jf	Undifferentiated sandstones of Franciscan group (Includes cherts, Jfc)	

IGNEOUS ROCKS
INTRUSIVE AND EXTRUSIVE

Pliocene	Tpp	Putnam Peak basalt	TERTIARY
	Tsd / Tsv / Tsh	Sonoma volcanics (Includes St. Helena rhyolite member, Tsh; and tuff containing diatomaceous beds, Tsd)	
	Jsp	Serpentine, peridotite and pyroxenite	JURASSIC (?)
	Jd	Diabase and basalt (Intrusive into and intercalated with the Franciscan group)	

- Strike and dip of beds
- Fault (Dashed where inferred, dotted where concealed)
- U / D — High-angle fault (Normal or reverse; U, upthrown side; D, downthrown side)
- T — Overthrust low-angle fault (T, overthrust side)
- Axis of anticline (Dotted where concealed by overlying deposits)
- Axis of syncline (Dotted where concealed by overlying deposits)

BY DIVISION OF MINES

- Mine or quarry
- Prospect
- Sand, gravel, clay, or road fill pit
- Mineral spring
- Producing oil well
- Producing gas well
- Non-productive well

DIVISION OF MINES
OLAF P. JENKINS, CHIEF

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

BULLETIN 149, PLATE 7
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EXPLANATION

SEDIMENTARY ROCKS

Recent	Qal	Younger valley alluvium	QUATERNARY
Pleistocene	Qmz	Montezuma formation	
Pliocene	Tw	Wolfskill formation	TERTIARY
Miocene (San Pablo group)	Tn	Neroly sandstone	
	Tmk	Markley sandstone	
Eocene	Te	Domengine sandstone	
		Capay shale	CRETACEOUS
Upper Cretaceous	Kc	Chico formation	

IGNEOUS ROCKS
INTRUSIVE AND EXTRUSIVE

Pliocene	Tpa	Putnam Peak basalt	TERTIARY
	Tpo	Pinole tuff	

Strike and dip of beds

Axis of anticline
(Dotted where concealed by overlying deposits)

Axis of syncline
(Dotted where concealed by overlying deposits)

Base from the U.S.G.S. Vacaville Quad.
Geologic cartography by Porter L. Mattox

Prepared in cooperation with the United States Geological Survey

GEOLOGIC MAP OF THE VACAVILLE QUADRANGLE, CALIFORNIA

By Charles E. Weaver

Scale 1/62500

0 1 2 3 4 Miles

0 1 2 3 4 5 Kilometers

Contour interval 10 feet.
Datum is mean sea level.

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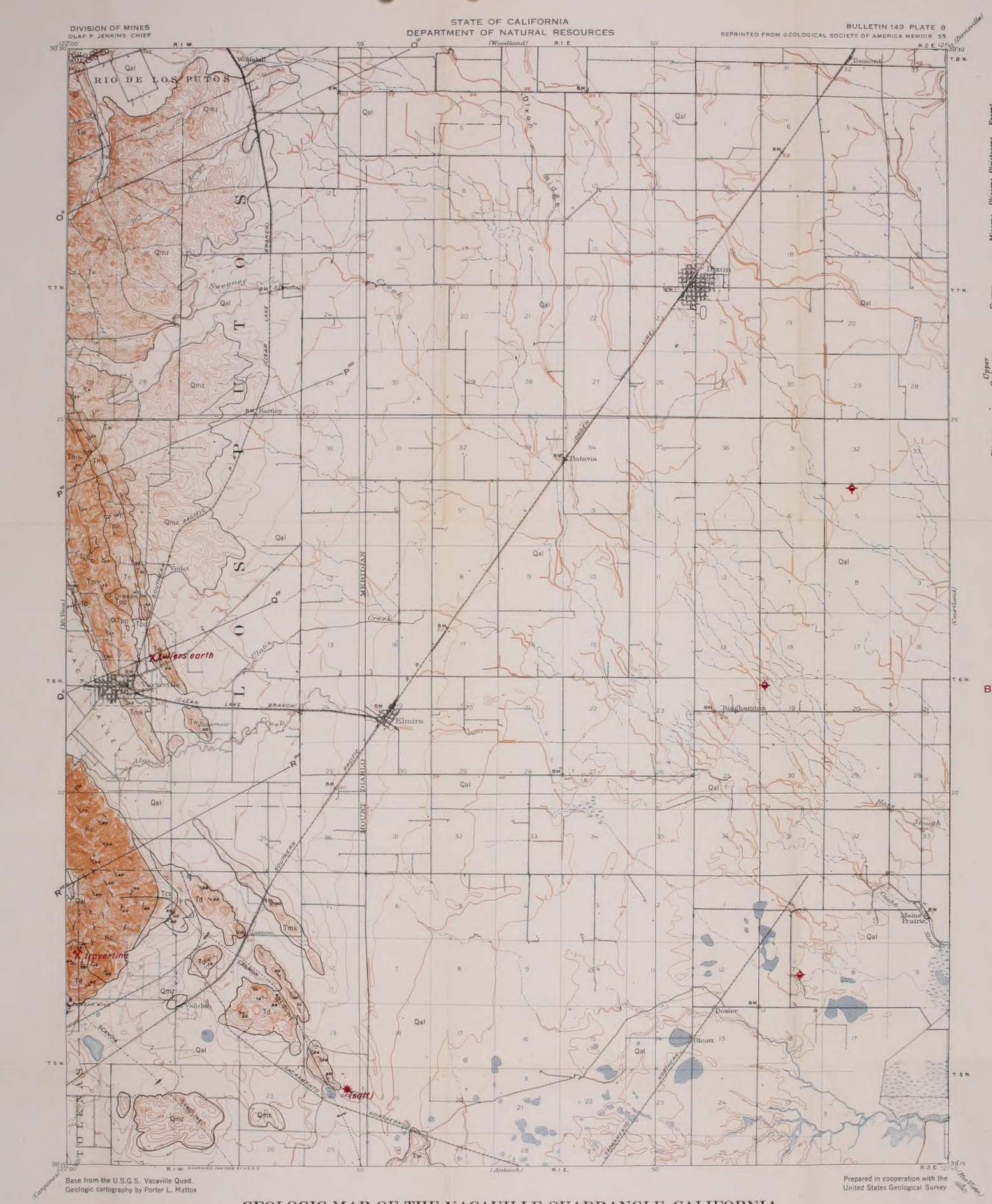
STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

BULLETIN 149 PLATE 8
REPRINTED FROM GEOLOGICAL SOCIETY OF AMERICA MEMOIR 35



EXPLANATION

SEDIMENTARY ROCKS

Qal	Younger valley alluvium	Recent	QUATERNARY
Qmz	Montezuma formation	Pleistocene	
Tw	Wolfskill formation	Pliocene	TERTIARY
Tn	Neroly sandstone	Miocene (San Pablo group)	
Tmk	Markley sandstone		
Td	Domengine sandstone	Eocene	
Tcs	Capay shale		
Kc	Chico formation	Upper Cretaceous	CRETACEOUS

IGNEOUS ROCKS
INTRUSIVE AND EXTRUSIVE

Tpp	Putnam Peak basalt	Pliocene	TERTIARY
Tpo	Pinole tuff		

Strike and dip of beds

Axis of anticline
(Dotted where concealed by overlying deposits)

Axis of syncline
(Dotted where concealed by overlying deposits)

BY DIVISION OF MINES

- Mine or quarry
- Prospect
- Sand, gravel, clay, or road fill pit
- Mineral spring
- Producing oil well
- Producing gas well
- Non-productive well

Base from the U.S.G.S. Vacaville Quad.
Geologic cartography by Porter L. Mattox

Prepared in cooperation with the United States Geological Survey

GEOLOGIC MAP OF THE VACAVILLE QUADRANGLE, CALIFORNIA

By Charles E. Weaver

Scale 62500

Miles

Kilometers

Contour interval 10 feet.
Datum is mean sea level.

APPROXIMATE MEAN DECLINATION 1908

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BULLETIN 149, PLATE 10
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GEOLOGIC MAP OF THE POINT REYES QUADRANGLE, CALIFORNIA

By Charles E. Weaver

Scale 1/62500

Contour interval 50 feet
Datum is mean sea level

Base from the U.S.G.S. Point Reyes Quad.
Geologic cartography by Porter L. Mattox

Prepared in cooperation with the United States Geological Survey

DIVISION OF MINES

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

BULLETIN 143, PLATE 11
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Base from the U.S.G.S. Petaluma Quad.
Geologic cartography by Porter L. Mattox

Prepared in cooperation with the United States Geological Survey

GEOLOGIC MAP OF THE PETALUMA QUADRANGLE, CALIFORNIA

By Charles E. Weaver

Contour interval 25 feet
Datum is mean sea level

GEOLOGIC MAP OF THE MARE ISLAND QUADRANGLE, CALIFORNIA

By Charles E. Weaver

DIVISION OF MINES
OLAF P. JENKINS CHIEF

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

BULLETIN 149 PLATE 14
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(Sonoma Quad.)
(Santa Rosa)
(Mt. Vaca)
(Petaluma)
(Cuyamaca)
(Tamalpais)
(San Francisco)
(Concord)
HUICHICA
RINCON DE LOS CARNEROS
PUEBLO LANDS OF SONOMA
NAPA CO
SONOMA CO
SONOMA MOUNTAIN
Shellville
Embarcadero
Schellville Colony
Coon Island
Edgerly Island
Bull Island
Green
Good Luck Pt
KNIGHT ISLAND
ISLAND NO 2
ISLAND NO 1
TUBBS ISLAND
Midshipman Pt
Petaluma Pt
PETALUMA CREEK
NAPA RIVER
Vallejo
MARE ISLAND
Slaughterhouse Pt
SAN PABLO BAY
BOUNDARY LINE
SOLANO CO
CONTRA COSTA CO
SONOMA CO
MARIN CO
CARQUINEZ STRAIT
Lone Tree Pt
Pinole Pt
Wilson Pt
PINOLE
Rodeo
Gallinas Cr
SAN PEDRO SANTA MARGARITA Y LAS GALLINAS
Midshipman Pt
EXPLANATION
SEDIMENTARY ROCKS
Qal Younger valley alluvium
Qmz Montezuma formation
Qml Millerton formation
Qh Huichica formation
Tm Merced formation
Tt Petaluma formation
Tor Orinda formation
Tn Neroly sandstone
Tc Cierbo sandstone
Tsp San Pablo group undifferentiated
Tb Briones sandstone (Includes Hercules shale member, Tbh)
Tr Rodeo shale
Th Hambre sandstone
Tt Tice shale
Tms Monterey shale where undifferentiated
To Oursan sandstone
Tcm Claremont shale
Tmk Markley sandstone
Td Domengine sandstone
Capay shale
Kc Chico formation
Kn Novato conglomerate
Kkh Knoxville and Horsetown (?) formations, undifferentiated
Undifferentiated sandstones of Franciscan group (Includes cherts, Jf, and metamorphic rocks, Jfm)
IGNEOUS ROCKS
INTRUSIVE AND EXTRUSIVE
Tsv Sonoma volcanics (Includes St. Helena rhyolite member, Tsh)
Tpt Pinole tuff
Jsp Serpentine, peridotite and pyroxenite
Recent
Pleistocene
Pliocene
Miocene
Eocene
Upper Cretaceous
QUATERNARY
TERTIARY
JURASSIC (?)
LOWER CRETACEOUS AND CRETACEOUS (?)
San Pablo group
Monterey group
Shasta series
Strike and dip of beds
Strike of vertical beds
High angle fault (Dashed where inferred, dotted where concealed. U upthrown side, D downthrown side)
Axis of anticline (Dotted where concealed by overlying deposits)
Axis of syncline (Dotted where concealed by overlying deposits)
Base from the U.S.G.S. Mare Island Quad
Geologic cartography by Porter L. Mattox
Prepared in cooperation with the United States Geological Survey
BY DIVISION OF MINES
Mine or quarry
Prospect
Sand, gravel, clay, or road fill pit
Mineral spring
Producing oil well
Producing gas well
Non-productive well
Miles
Kilometers
Datum is mean sea level

GEOLOGIC MAP OF THE MARE ISLAND QUADRANGLE, CALIFORNIA

By Charles E. Weaver

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

REPRINTED FROM GEOLOGICAL SOCIETY OF AMERICA MEMOIR

GEOLOGIC MAP OF THE CARQUINEZ QUADRANGLE, CALIFORNIA

By Charles E. Weaver

EXPLANATION

SEDIMENTARY ROCKS

QUATERNARY
- Recent: Younger valley alluvium
- Pleistocene: Montezuma formation; Millerton formation
- Pliocene: Wolfskill formation

TERTIARY
- San Pablo group: Neroly sandstone; Cierbo sandstone; Briones sandstone; San Pablo group undifferentiated
- Miocene, Monterey group: Rodeo shale; Hambre sandstone; Tice shale; Oursan sandstone; Sobrante sandstone; Monterey shale where undifferentiated
- Oligocene: San Ramon sandstone
- Eocene: Markley sandstone; Domengine sandstone
- Martinez formation

CRETACEOUS
- Chico formation
- LOWER CRETACEOUS AND JURASSIC: Knoxville and Horsetown (?) formations undifferentiated
- JURASSIC ?: Cherts of Franciscan group

IGNEOUS ROCKS
- Pliocene: Sonoma volcanics; Pinole tuff; Lawlor tuff; Hornblende
- Sulphur Springs Mountain andesite
- JURASSIC: Serpentine and peridotite; Diabase and basalt

Strike and dip of beds

Fault

High angle fault

Thrust fault

Axis of anticline

Axis of syncline

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STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

BULLETIN 149 PLATE 16
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EXPLANATION

SEDIMENTARY ROCKS

Recent	Qal	Younger valley alluvium		
Pleistocene	Qmz	Montezuma formation		
	Qm	Millerton formation		
Pliocene	Tw	Wolfskill formation		
Miocene, San Pablo group	Tn	Neroly sandstone	Tsp	San Pablo group undifferentiated
	Tc	Cierbo sandstone		
	Tb	Briones sandstone (Includes Hercules shale member, Tbh)		
Miocene, Monterey group	Tr	Rodeo shale	Tms	Monterey shale where undifferentiated
	Th	Hambre sandstone		
	Tt	Tice shale		
Oligocene	To	Oursan sandstone		
	Ts	Sobrante sandstone		
Eocene	Tsr	San Ramon sandstone		
	Tmk	Markley sandstone (Includes Jameson shale member, Tj)		
	Td	Domengine sandstone		
	Tm	Martinez formation		
Upper Cretaceous	K	Chico formation		
Shasta series	Kkh	Knoxville and Horsetown (?) formations, undifferentiated (Includes fault breccia, Kfb, in Sulphur Springs Mountain, mainly Tertiary)		
	Jfc	Cherts of Franciscan group		

IGNEOUS ROCKS
INTRUSIVE AND EXTRUSIVE

Pliocene	Ts	Sonoma volcanics
	Tp	Pinole tuff
	Tl	Lawlor tuff
	Thb	Hornblendite
	Tsa	Sulphur Springs Mountain andesite
Jurassic (?)		Serpentine, peridotite and pyroxenite
		Diabase and basalt (Intrusive and interbedded with the Franciscan group)

Strike and dip of beds
Strike of vertical beds
Fault (Dashed where inferred, dotted where concealed)
High angle fault (Normal or reverse; U, upthrown side; D, downthrown side)
Thrust fault (Sawteeth on upper plate)
Axis of anticline (Dotted where concealed by overlying deposits)
Axis of syncline (Dotted where concealed by overlying deposits)

QUATERNARY
TERTIARY
LOWER CRETACEOUS AND JURASSIC
JURASSIC (?)

Prepared in cooperation with the United States Geological Survey

GEOLOGIC MAP OF THE CARQUINEZ QUADRANGLE, CALIFORNIA

By Charles E. Weaver

Scale 1:50,000

BY DIVISION OF MINES

- Mine or quarry
- Prospect
- Sand, gravel, clay, or road fill pit
- Mineral spring
- Producing oil well
- Producing gas well
- Non-productive well

TN 23 .A3 no 149

DIVISION OF MINES

STATE OF CALIFORNIA

BULLETIN 144 PLATE 17

EXPLANATION

SEDIMENTARY ROCKS

QUATERNARY

Recent

Qal — Younger valley alluvium

Qd — Sand dunes

Pleistocene

Qmz — Montezuma formation

Pliocene

Tw — Wolfskill formation

TERTIARY

Miocene

Tn — Neroly sandstone

Tc — Cierbo sandstone

Tmk — Markley sandstone

Eocene

Tdg — Domengine sandstone

Tcp — Capay shale

Paleocene

Tmz — Martinez formation

CRETACEOUS

Kc — Chico formation

IGNEOUS ROCKS

TERTIARY

Pliocene

Tl — Lawlor tuff

Strike and dip of beds

High-angle fault
(Dashed where inferred; dotted where concealed; U, upthrown side; D, downthrown side)

Axis of anticline
(Dotted where concealed by overlying deposits)

Axis of syncline
(Dotted where concealed by overlying deposits)

Base from the U S G S Antioch Quad
Geologic cartography by Porter L. Mattox

Prepared in cooperation with the United States Geological Survey

GEOLOGIC MAP OF THE ANTIOCH QUADRANGLE, CALIFORNIA

By Charles E. Weaver

Scale 1:62500

1 0 1 2 3 4 5 Miles

1 0 1 2 3 4 5 Kilometers

Contour interval 10 feet
Datum is mean sea level

APPROXIMATE MEAN DECLINATION 20°

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STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

BULLETIN 149 PLATE 18
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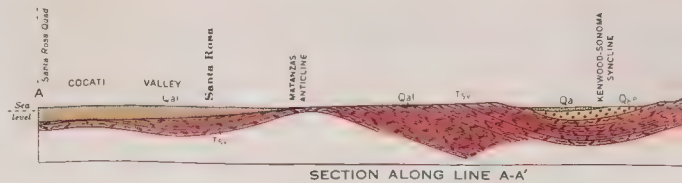
Base from the U.S.G.S. Antioch Quad
Geologic cartography by Porter L. Mattox

GEOLOGIC MAP OF THE ANTIOCH QUADRANGLE, CALIFORNIA

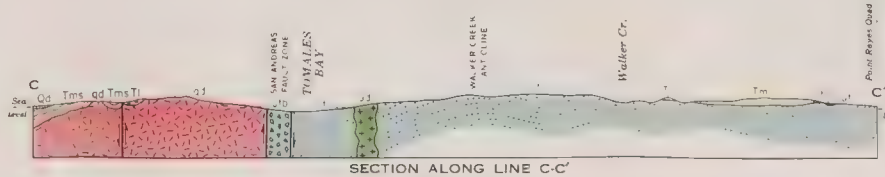
By Charles E. Weaver

Scale 1/62500

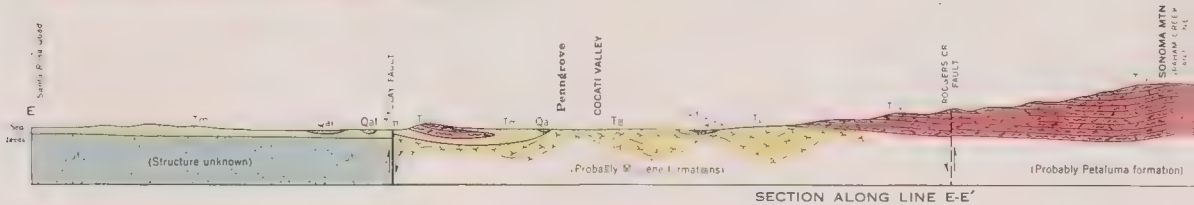
Contour interval 10 feet
Datum is mean sea level



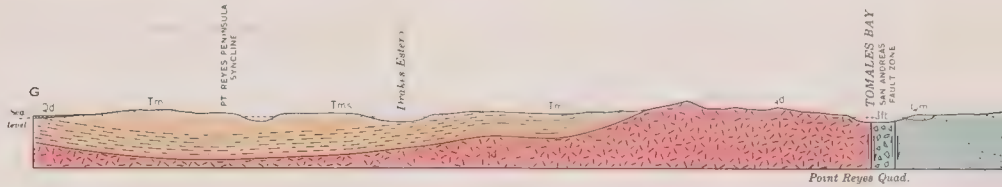
SECTION ALONG LINE A-A'
Santa Rosa Quad.



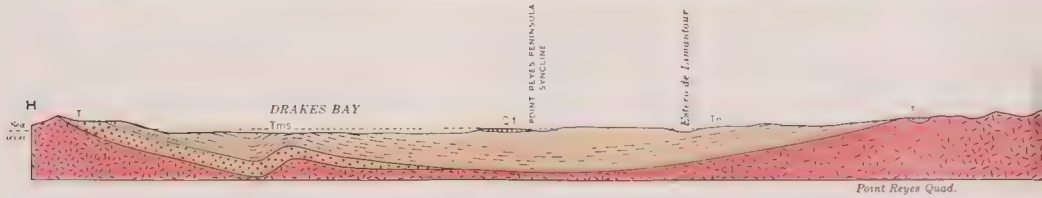
SECTION ALONG LINE C-C'
Point Reyes Quad.



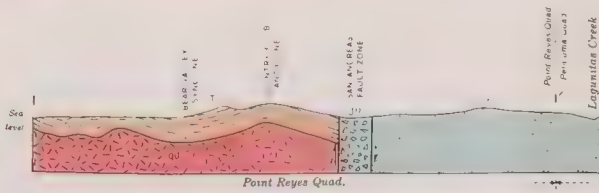
SECTION ALONG LINE E-E'
Santa Rosa Quad.



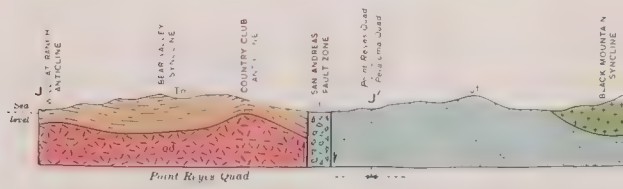
Point Reyes Quad.



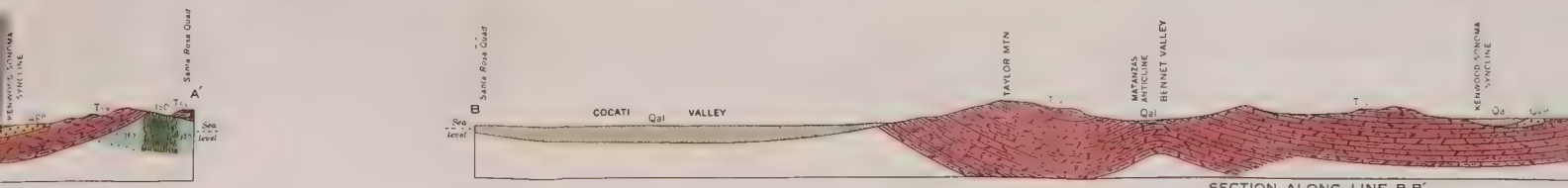
Point Reyes Quad.



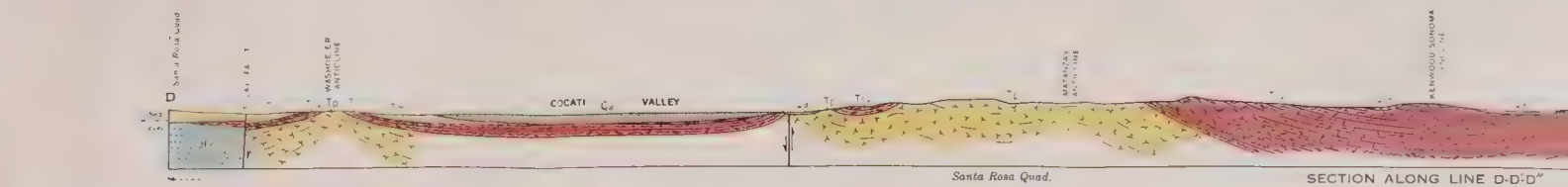
Point Reyes Quad.



Point Reyes Quad

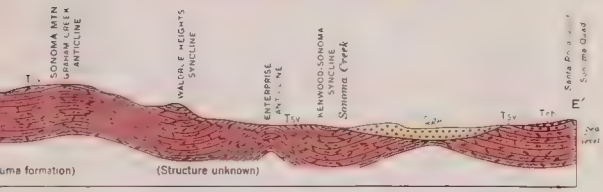


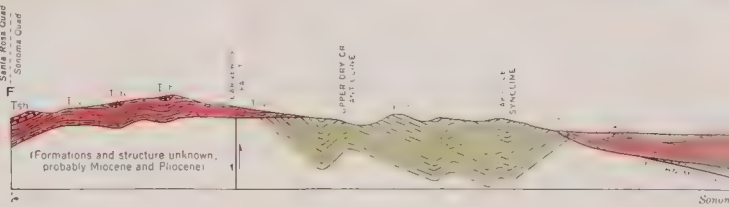
SECTION ALONG LINE B-B'
Santa Rosa Quad.

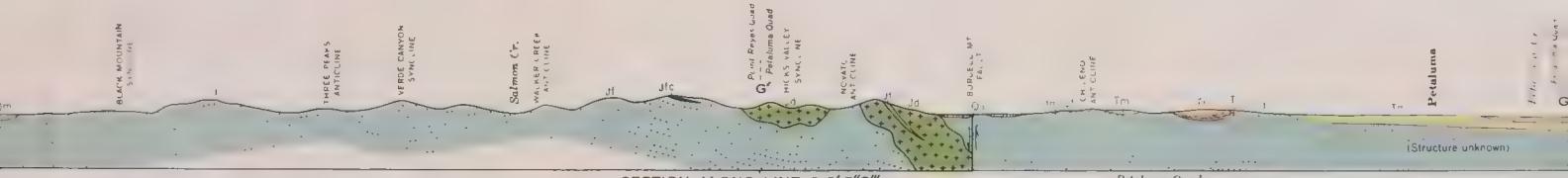


Santa Rosa Quad.

SECTION ALONG LINE D-D'-D''







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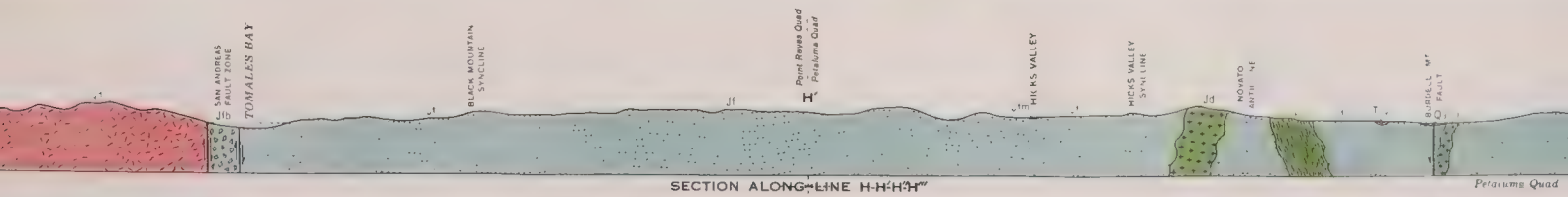
Petaluma Quad.



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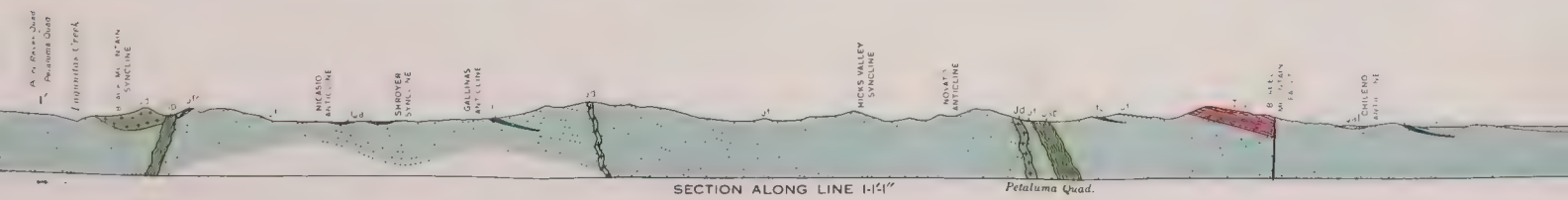
Petaluma Quad.



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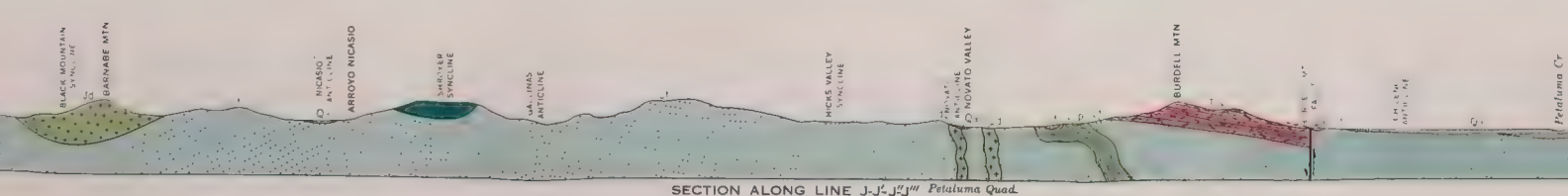
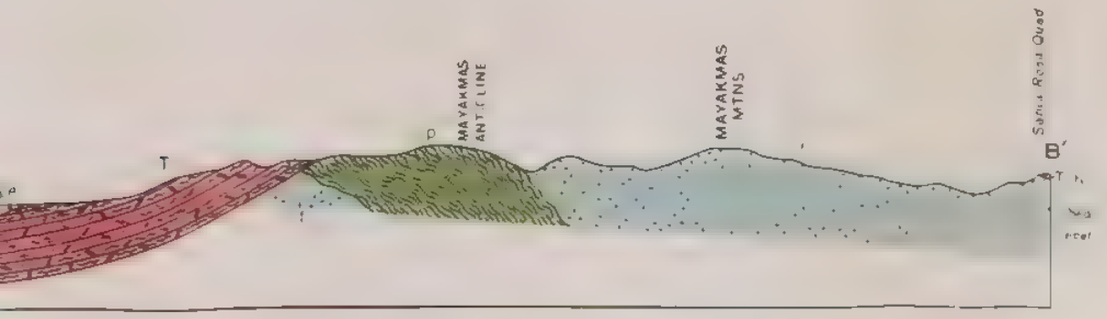
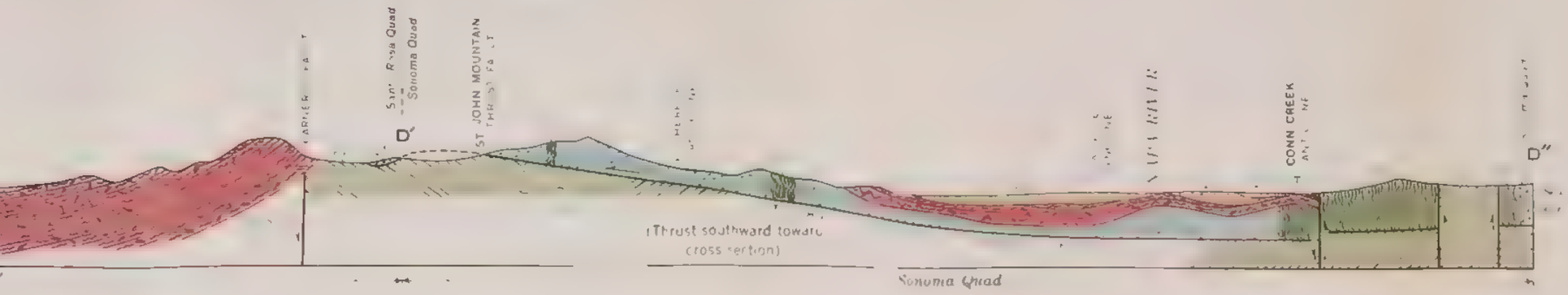
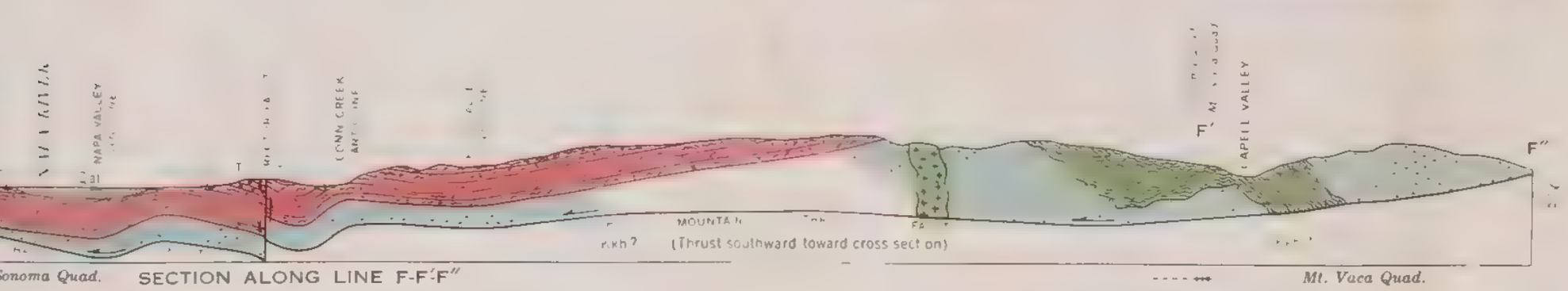
Petaluma Quad.

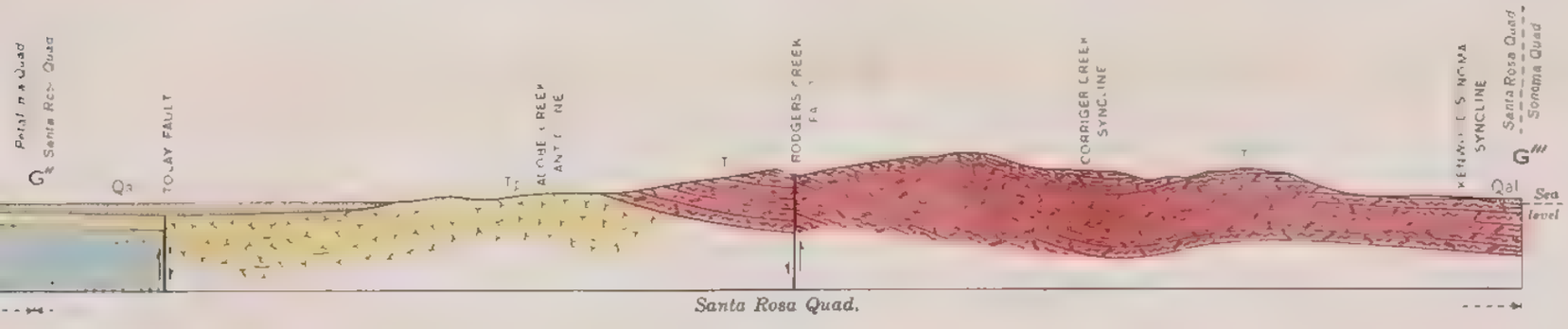


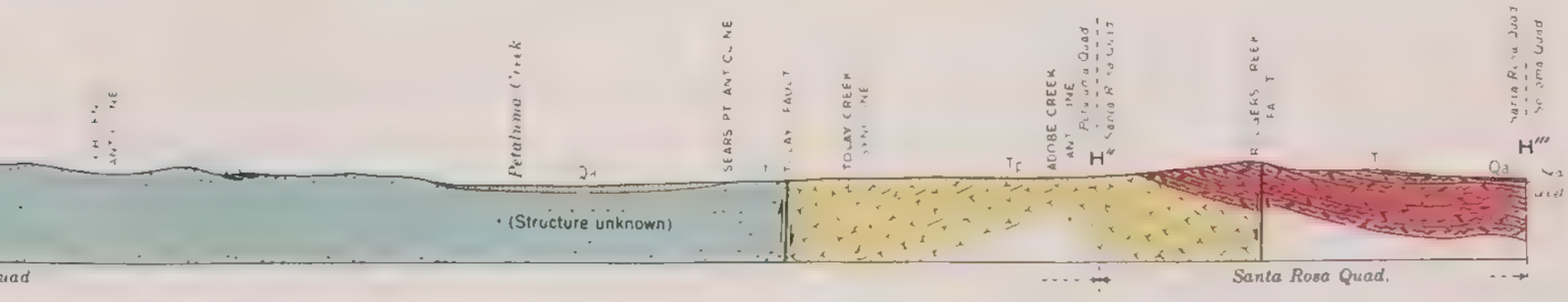
SECTION ALONG LINE J-J'-J''J''' *Petaluma Quad.*

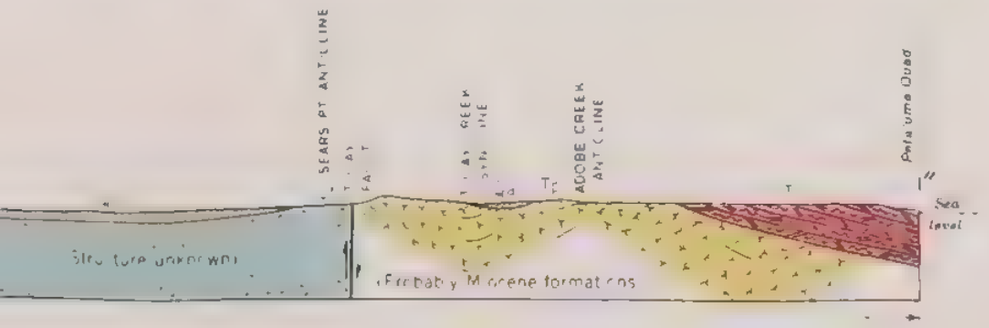

MAYAKMAS ANTICLINE
MAYAKMAS MTNS
Santa Rosa Quad
B'

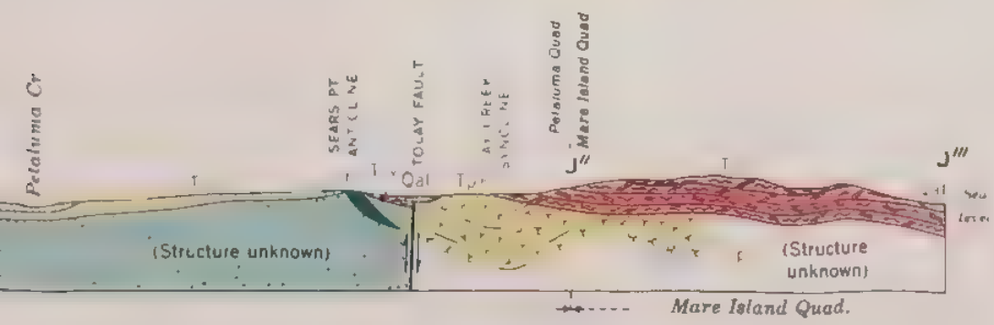

Santa Rosa Quad
Sonoma Quad
ST JOHN MOUNTAIN
CONN CREEK
D'
D''
(Thrust southward toward cross section)
Sonoma Quad

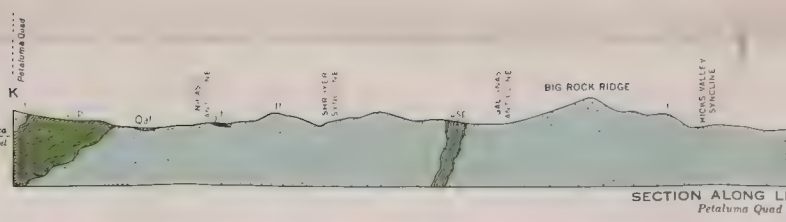

NAPA VALLEY
CONN CREEK ANTICLINE
CAPELL VALLEY
F'
F''
(Thrust southward toward cross section)
Sonoma Quad.
SECTION ALONG LINE F-F'-F''
Mt. Vaca Quad.

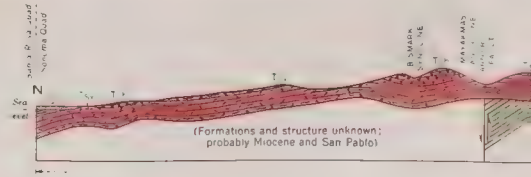

TOLAY FAULT
ADOBE CREEK ANTICLINE
RODGERS CREEK FAULT
CORRIGER CREEK SYNCLINE
KENWOOD-SONOMA SYNCLINE
Santa Rosa Quad
Sonoma Quad
G'''
Qal
Sea level
Santa Rosa Quad.

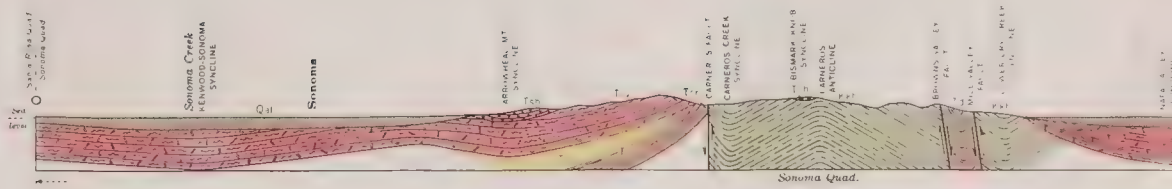

Petaluma Creek
SEARS PT ANTICLINE
TOLAY FAULT
TOLAY CREEK ANTICLINE
ADOBE CREEK ANTICLINE
RODGERS CREEK FAULT
Santa Rosa Quad
Sonoma Quad
H'''
(Structure unknown)
Santa Rosa Quad.

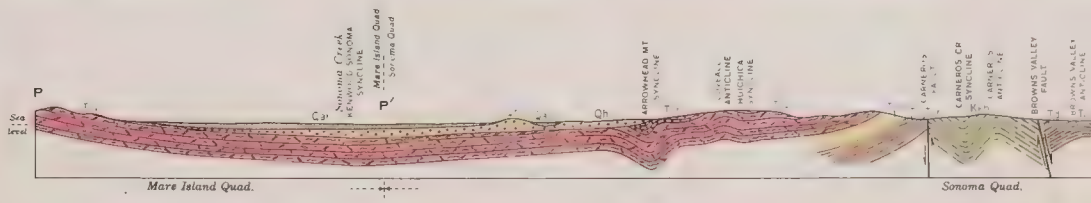

SEARS PT ANTICLINE
TOLAY FAULT
ADOBE CREEK ANTICLINE
Petaluma Quad
I''
Sea level
(Structure unknown)
(Probably Miocene formations)

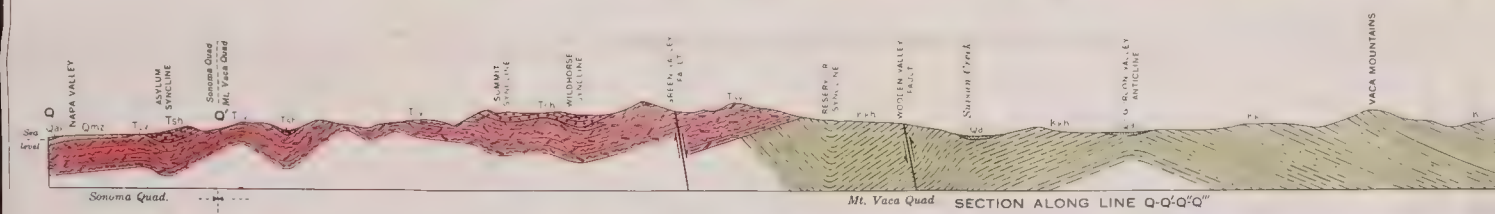

Petaluma Cr
SEARS PT ANTICLINE
TOLAY FAULT
Petaluma Quad
Mare Island Quad
J''
J'''
Qal
(Structure unknown)
(Structure unknown)
Mare Island Quad.

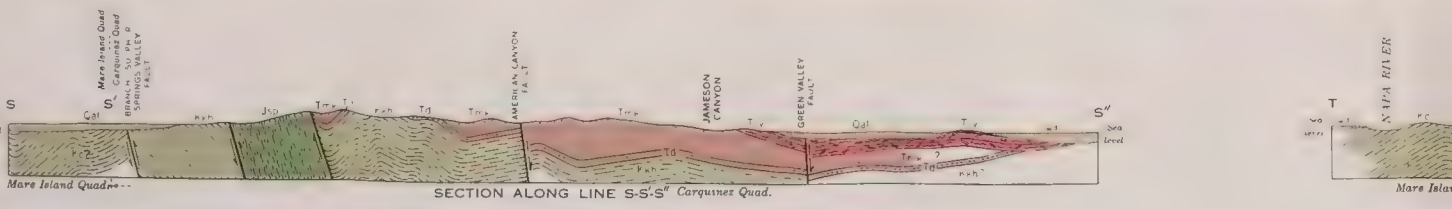


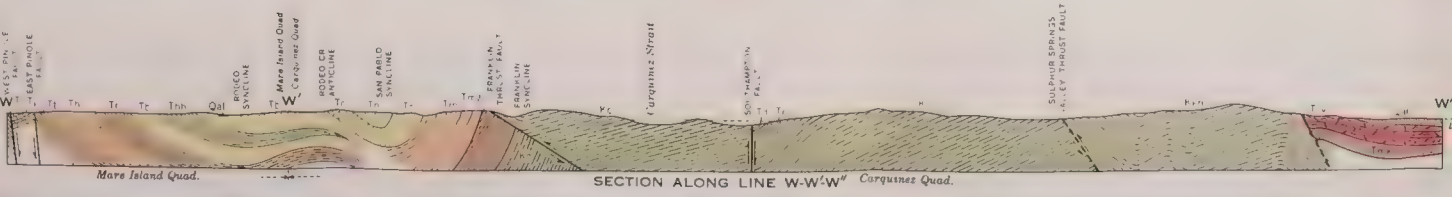




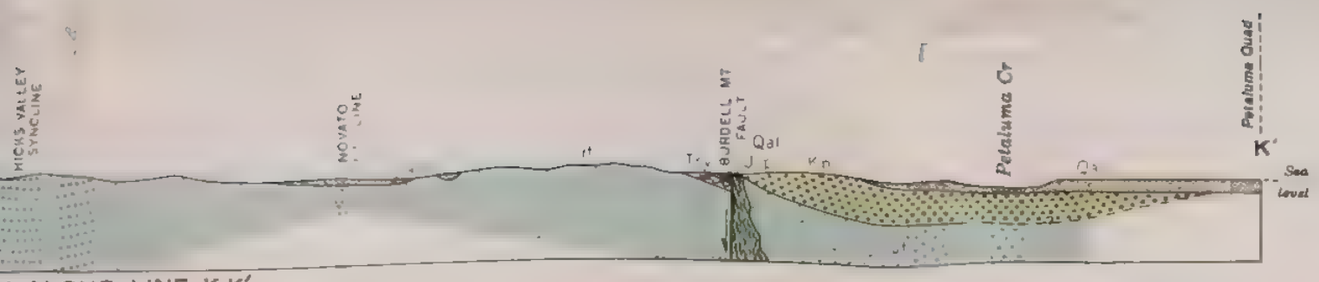




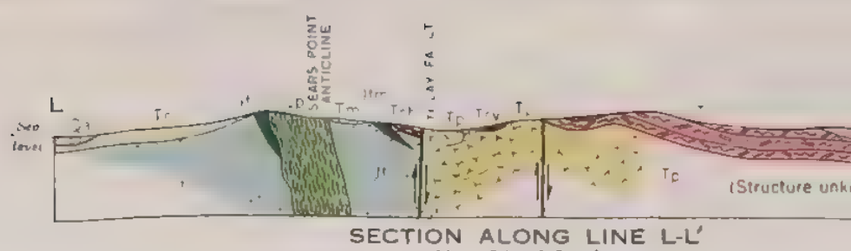




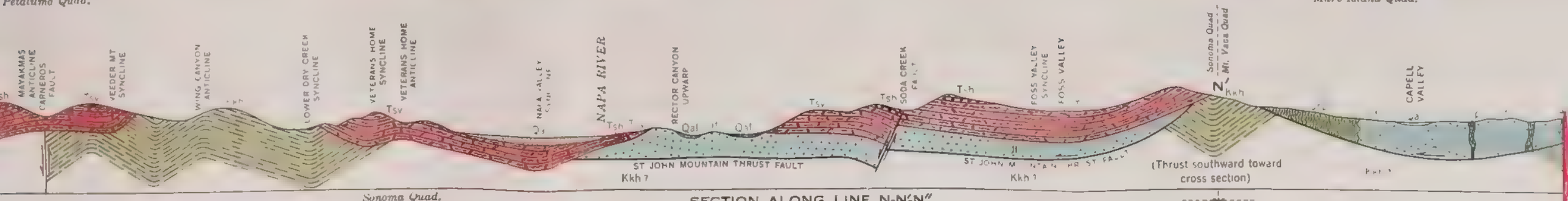
Geologic cartography
by Porter L. Mattox



N ALONG LINE K-K'
Petaluma Quad.

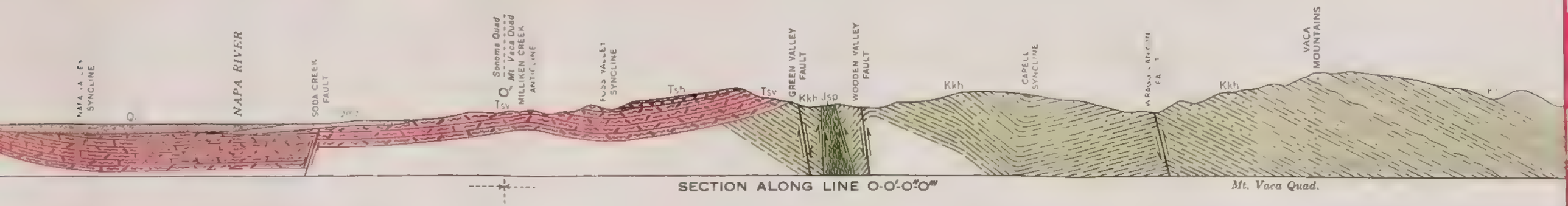


SECTION ALONG LINE L-L'
Mare Island Quad.



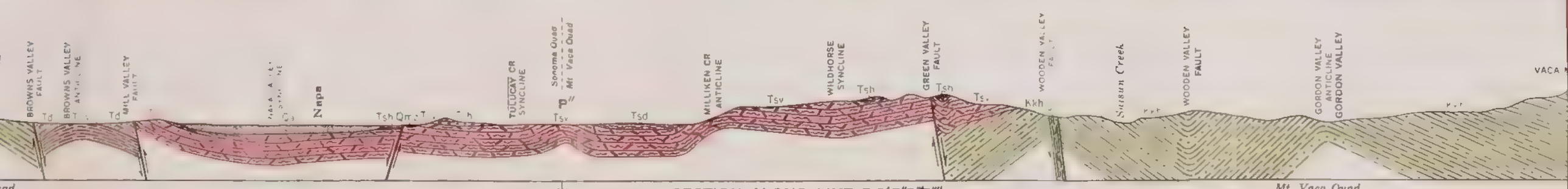
Sonoma Quad.

SECTION ALONG LINE N-N'-N''



SECTION ALONG LINE O-O'-O''-O'''

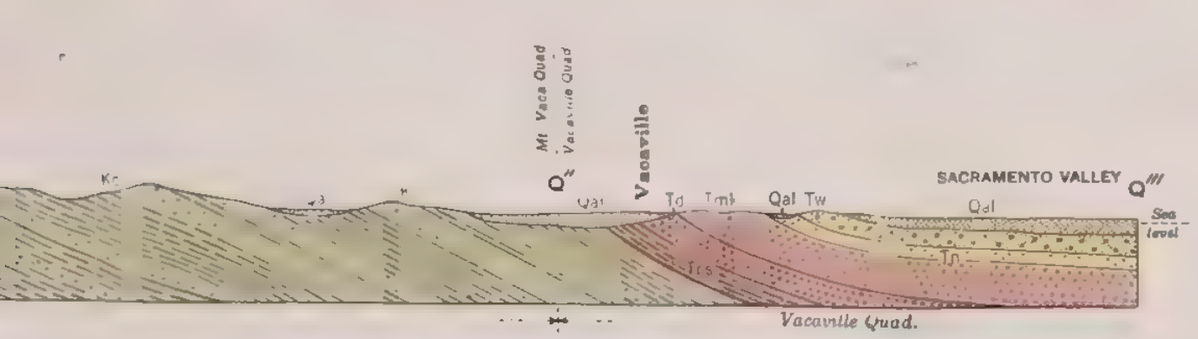
Mt. Vaca Quad.



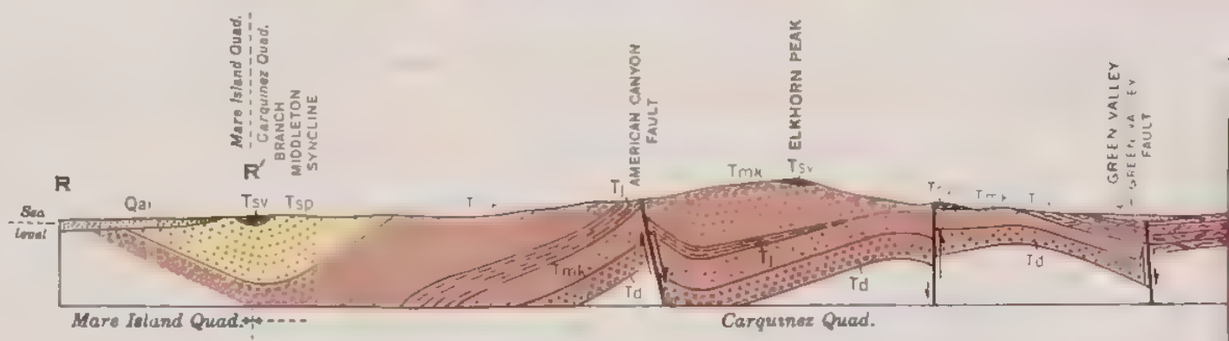
ad.

SECTION ALONG LINE P-P'-P''-P'''-P''''

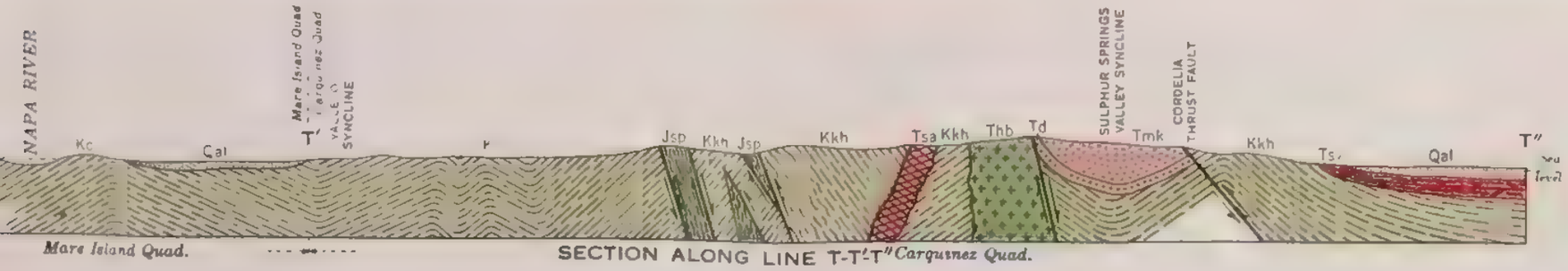
Mt. Vaca Quad.



Vacaville Quad.



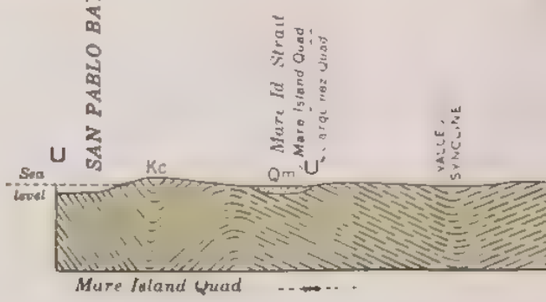
Mare Island Quad. *Carquinez Quad.*



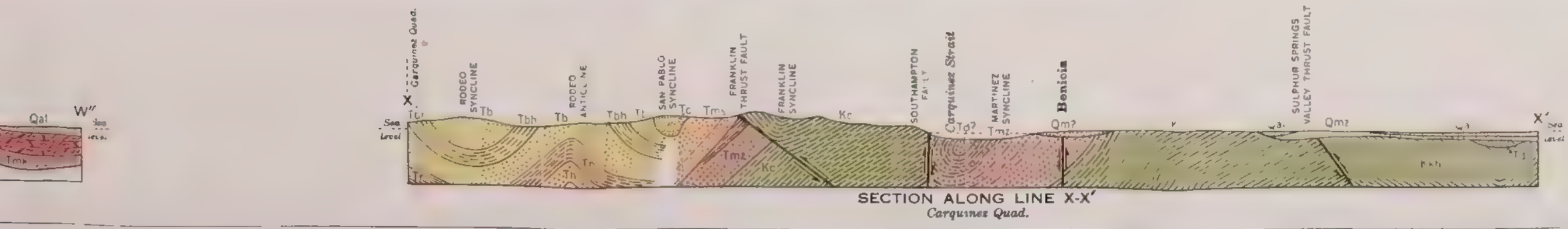
Mare Island Quad.

SECTION ALONG LINE T-T'-T''

Carquinez Quad.



Mare Island Quad



SECTION ALONG LINE X-X'

Carquinez Quad.

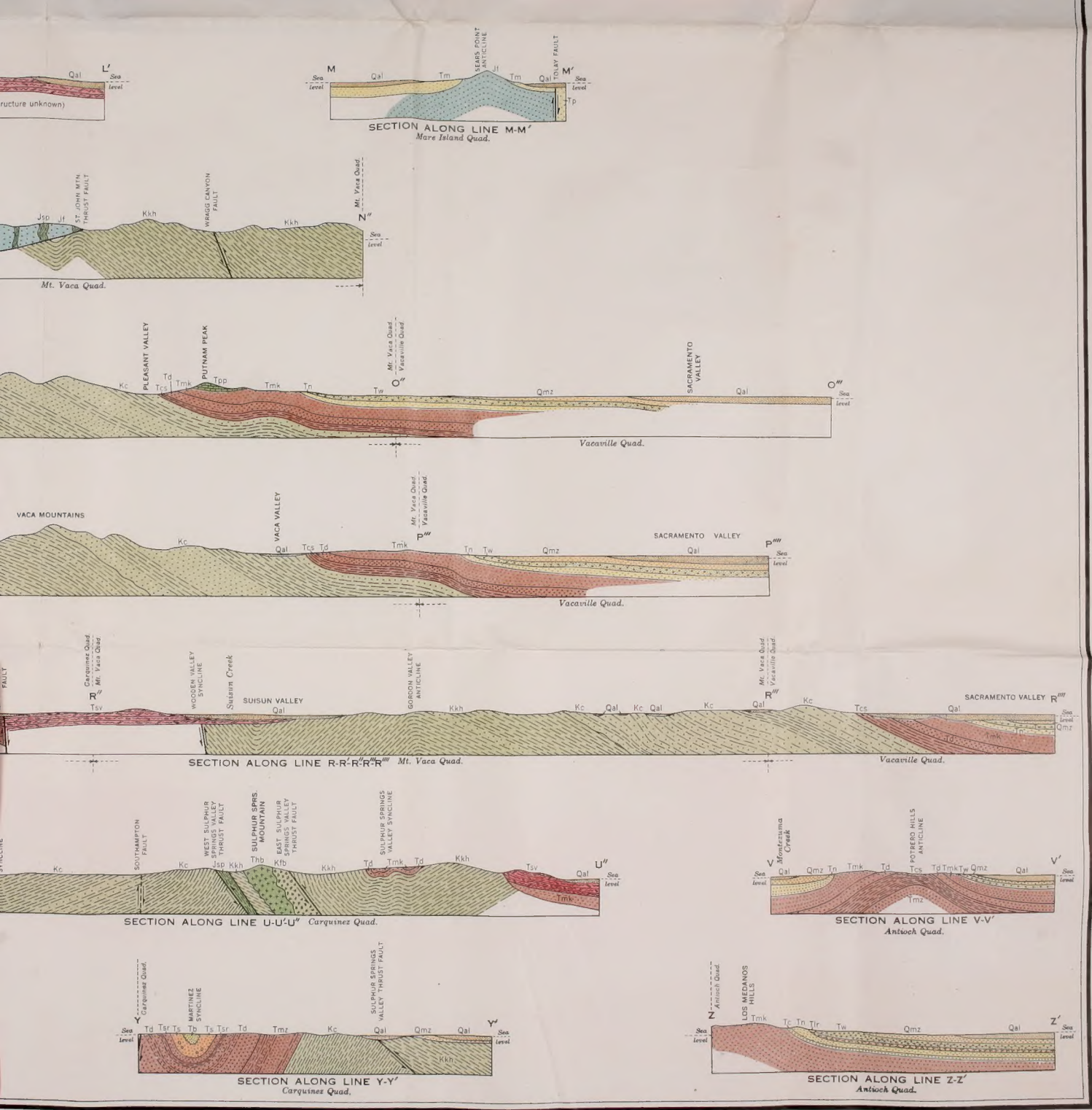
GEOLOGIC STRUCTURE SECTIONS

Along lines indicated on Plates 6-13

Scale 1:62,500

1 0 1 2 3 4 Miles

1 0 1 2 3 4 5 Kilometers



Prepared in co-operation with the United States Geological Survey

STATE OF CALIFORNIA

DEPARTMENT OF NATURAL RESOURCES

GENERALIZED STRATIGRAPHIC SECTION OF THE SEDIMENTARY ROCKS IN THE COAST RANGES OF CALIFORNIA IMMEDIATELY NORTH OF SAN FRANCISCO BAY

(Classification as Authorized by U. S. Geological Survey—1938)

DIVISION OF MINES
OLAF P. JENKINS, Chief

BULLETIN 149
PLATE 20

Era	Period	Epoch and Series	Group	Formation or Member	Character of Rocks
CENOZOIC	QUATERNARY	RECENT	(Contemporaneous)	Younger Valley Alluvium	Interbedded sands, clays, gravels and reworked tuffaceous materials deposited largely as alluvium.
				Reworked Sand Dunes	Sand from dunes transported by running water and redeposited alluvial material.
				Sand Dunes	Best represented along the ocean and the shores of San Pablo and Suisun Bays.
		Recent and Pleist.		Travertine	Small patches, less than 50 feet thick, exposed on the south end of the Vaca Mountains.
		PLEISTOCENE	(Contemporaneous in part)	Montezuma Formation	Obscurely stratified gravels, sands and clays; terraces.
				Millerton Formation	Marine sands, clays and gravels slightly elevated above sea level and moderately folded and faulted.
				Glen Ellen Formation	Fluviatile gravel, sand, clay and boulder deposits derived from andesite and tuffs.
				Huichica Formation	Elevated terrace deposits composed of poorly stratified gravels, conglomerates, sands and clays situated around margins of Napa and Sonoma Valleys. Nonmarine.
		Pre-Pleistocene		High Terrace Gravels	Consolidated deposits of large well-rounded boulders exposed at an altitude of 500 feet on the north side of Conn Valley.
	TERTIARY	PLIOCENE		Merced Formation	Marine sandstones, shales, shaly sandstones, and interbedded grits and gravels, with intercalated andesitic tuffs and fresh water clays and sands.
			(Contemporaneous (?) in part)	Wolfskill Formation	Conglomerates, sandstones and interbedded deposits of andesitic tuffs; all continental.
				Petaluma Formation	Light-brown massive and bedded sandstone and pebbly conglomerate with interbedded greenish gray clay shales, all of fresh-and brackish-water origin.
				Orinda Formation	Fresh-water conglomerates, sandstones, clays and ostracod limestones with minor deposits of tuff.
		MIOCENE	San Pablo Group	Neroly Sandstone	Interbedded coarse-grained massive bluish-gray sandstones, fine-grained gray sandstones, and subordinate amounts of light brown shale. Marine.
				Cierbo Sandstone	Lower part composed of gray sandstone and white tuff; upper part yellowish to brownish-gray concretionary sandstone. Marine.
				Briones Sandstone, Including Hercules Shale Member	Medium- to fine-grained cleanly washed quartzose yellowish brown sandstone. Hercules shale member consists of a light brownish gray shale.
			Monterey Group	Rodeo Shale	Brownish gray chalky, slightly cherty shale. Marine.
				Hambre Sandstone	Light brown to gray sandstone with minor amounts of interbedded gray sandy shale. Marine.
				Tice Shale	Light gray bituminous shale with interbedded white chalky shale. Marine.
				Oursan Sandstone	Fine-grained light gray tuffaceous sandstone. Marine.
				Claremont Shale	Light gray siliceous shale with interbedded layers of chert, limestone and fine-grained sandstone. Marine.
				Sobrante Sandstone	Fine-grained massive light gray sandstone with conglomerate at base. Marine.
				MONTEREY (Undifferentiated)	Massive and bedded brownish gray sandstone and sandy shale. Interbedded white thinly laminated cherts present in Point Reyes quadrangle.
		Lower Miocene (?)		Laird Sandstone	Light brownish-gray massive sandstone, locally containing shale layers in upper part and usually conglomerate at the base. Confined to Point Reyes Peninsula.
		Oligocene		San Ramon Sandstone	Light gray sandy shale and interstratified fine-grained sandstone and conglomerate. Marine.
		EOCENE		Markley Sandstone, Including Jameson Shale Member	Massive reddish brown to tan micaceous sandstone with minor amounts of light gray thinly bedded shales, containing, in middle part, Jameson shale member.
				Domengine Sandstone	Massive medium-grained brownish gray to white cross-bedded sandstone locally containing lenses of coarse conglomerate. Marine.
				Capay Shale	Brownish gray thinly bedded clay shale and mudstone. Marine.
		Paleocene		Martinez Formation	Massive brown and greenish gray sandstone, much of it glauconitic, with interstratified layers of foraminiferal shale. Marine.
MESOZOIC	Cretaceous	Upper		Chico Formation	Sedimentary strata, largely marine origin, consisting of massive and thin-bedded clay shales alternating with brownish gray massive and bedded sandstones and occasional layers of conglomerate.
	Cretaceous (?)			Novato Conglomerate	Thick-bedded conglomerate composed of well-rounded cobbles and pebbles of quartzite, quartz porphyry, quartz diorite, and white quartz. Exposed only in Petaluma quadrangle.
	Upper Jurassic and lower Cretaceous			Knoxville and Horsetown (?) Formations, Undifferentiated	Sedimentary strata, largely marine, consisting mainly of dark gray massive and thin-bedded clay shales, thin layers of siltstone, and subordinate amount of brownish gray sandstone and lenses of conglomerate.
	Jurassic (Pre-Knoxville)		Franciscan Group	Undifferentiated Sandstones	Massive poorly stratified medium- to coarse-grained arkosic sandstone with occasional thin layers of gray sandy shale; conglomerate lenses.
				Cherts	Massive and thin-bedded white, red, and green radiolarian cherts in layers and lenses interbedded with sandstone.
				Metamorphic Rocks	Derived from sedimentary and igneous rock, mica, amphibole, quartz, and albite schists.
PALEOZOIC(?)		Sur Series		Limestone	Crystalline limestone masses included in quartz diorite. Probably equivalent to Calaban limestone of San Mateo quadrangle.
				Schist and Quartzite	Quartzite and mica and hornblende schist masses included in quartz diorite.